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connection with Application No. PP 3176 for a patent by GIS PAC PTY LTD filed
on 24 April 1998.

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AUSTRALIA

Patents Act 1990

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PROVISIONAL SPECIFICATION

Invention Title:

Bag handle and method of attachment

The invention is described in the following statement:

Introduction

The present invention relates to an apparatus for attaching a handle to a bag, and to a method of attaching a handle to a bag, in particular, but not only, to shopping bags with flexible cord handles.

5 **Description of the Prior Art**

One type of bag relevant to the field of this invention, has a pair of flexible cord handles which pass through apertures in the bag, the free ends of the handles being tied to prevent disengagement of the handle from the bag. The flexible cord handle is comfortable to use, provides an aesthetically
10 pleasing, high quality product and is easier to pack than rigid handled bags since the flexible cord will drape downwardly on bag when not in use.

Connecting such handles to the bag wall itself, however, creates certain difficulties. Normally the handle is manually passed through the apertures adjacent to the open upper end of the bag and the free ends tied in
15 knots to prevent the handle from disengaging from the bag. This is a slow, expensive and labour intensive process, particularly if the handle is produced from a woven cord which has very little rigidity in the axial direction. Further, the possibility of human error cannot be discounted and if the knots are improperly tied, the handle may disengage from the bag
20 altogether leading to damage of the bag contents.

Handles are also known to be fitted to bags via adhesive strips which makes their security dependant on the adhesion and tearability of the strip and/or bag.

Summary of the Invention

25 The present invention provides a method and apparatus for attaching flexible cord handles to bags or other receptacles which offers a useful alternative to known arrangements.

In a first aspect, the present invention provides a method for attaching a flexible cord handle to a bag comprising the steps of:

- 30 forming at least one aperture through a bag wall;
- passing an end of a cord having an aglet thereon, through an aperture in the bag wall;
- providing at least one obstruction member with at least one cord receiving cavity therein adapted to receive the aglet of at least one cord;
- 35 inserting the aglet into a cord receiving cavity of an obstruction member so that the aglet is located at least partially within the cavity; and

bonding the aglet to the obstruction member.

The size of the aperture formed through the bag wall is preferably only marginally larger than the largest transverse cross-sectional dimension of the aglet.

5 The obstruction member provided in accordance with the above method may be of many different forms. For example, the cord receiving cavity within the obstruction member may pass entirely through the obstruction member. In such embodiments, the aglet may be positioned some distance away from the end of the cord, and the cord may be passed
10 through the obstruction member until the aglet is located at least partially within the obstruction member. Such an embodiment would provide a length of cord protruding from the obstruction member which may be aesthetically desirable or serve some further useful function.

15 In other embodiments the obstruction member may provide advertising, for example a company logo printed on the exposed side of the member, or the member may be shaped for the purposes of advertising.

20 The step of bonding the aglet to the obstruction member may be performed by sufficiently heating some or all of the obstruction member to cause said bonding. In some embodiments, the step of heating the obstruction member may be performed using microwave heating techniques. In cases such as this the heating preferably occurs only within a small part of the obstruction member close to the aglet. Such a technique may be desirable for the purposes of speed, efficiency of production, or to minimise heat damage to the cord or aglet.

25 Alternatively, bonding between the aglet and the obstruction member may be effected by the use of an adhesive.

30 In some embodiments of the method of the invention, the obstruction member may have dimensions such that it can pass through the aperture of the bag. In such embodiments, the step of heating to cause bonding between the obstruction member and the aglet may occur before the step of passing the cord through the aperture. In order to attach the cord handle to the bag in such embodiments the method further includes the steps of:

35 heating some or all of the obstruction member; and
 deforming the obstruction member such that its dimensions no longer permit it to pass through the aperture.

Furthermore, in such embodiments the aglet itself may function as the obstruction member. In cases such as this the aglet must be of a quality of deformable material such that it can provide a sufficiently sturdy obstruction once it is deformed so that its dimensions no longer permit it to pass through
5 the aperture.

In such embodiments the step of deforming the obstruction member may be performed in such a way that the obstruction member provides advertising material or decoration, for example it may be deformed into the shape of a country or a company logo.

10 A second aspect of the present invention provides an obstruction member for attaching a cord handle to a bag or other receptacle, the obstruction member:

comprising a cord receiving cavity adapted to engage an agleted cord;
being large enough, or able to be deformed so that it becomes large
15 enough, to be unable to pass through an aperture in the bag wall; and
being made of a suitable material that it may bond to an aglet.

In embodiments where the obstruction member has dimensions such that it may pass through the aperture of the bag, it must be made of a deformable material.

20 The cord receiving cavity within the obstruction member may be a passageway entirely through the obstruction member.

In other embodiments the obstruction member may provide advertising, for example a company logo printed on the exposed side of the member, or the member may be shaped for the purposes of advertising.

25 A third aspect of the present invention provides an agleted cord. The cord may be made of any suitable flexible material. The agleted cord must be able to pass through a corresponding aperture in a bag wall.

The aglet must be sufficiently firmly attached to the cord to hold the cord in place when in use as a bag handle.

30 The aglet may function as an obstruction member. In such cases the aglet must be deformable, and of sufficient mass to provide an effective obstruction after deformation.

Alternatively, the aglet must be made of a suitable material to bond or adhere to an obstruction member.

A fourth aspect of the present invention provides a bag or receptacle made according to the aforementioned method. Preferably the bag comprises a pair of flexible agletted cord handles adjacent to an open mouth of the bag.

The bag may comprise any suitable flexible material such as paper,
5 light cardboard, plastic film or fabric.

Preferably, the bag comprises a pair of obstruction members for each handle, one obstruction member being fixed to each respective free end of the cord. Alternatively, the bag may include a single obstruction member for each flexible cord handle, such an obstruction member having a pair of cord
10 receiving passageways adapted to be fixed to both free ends of each flexible cord handle.

The free end of the cord may be doubled back on itself before being inserted into the cord receiving passageway of the obstruction member, so that the free end of the cord and the handle are on the opposite side of the
15 bag wall to the obstruction member.

As a matter of choice the obstruction member can be positioned on the interior or exterior side of the bag wall. If the obstruction member is decorative or includes additional advertising material, it may be desirable to have it positioned on an exterior side of bag.

20 **Brief Description of the Drawings**

Embodiments of the invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 is a perspective view of a conventional bag/receptacle;

Figure 2 is a perspective view of a bag according to the present
25 invention;

Figure 3 is a cross sectional view of an embodiment of the invention in which the obstruction member is larger than the aperture in the bag wall;

Figure 4a shows a cross sectional view of an embodiment in which the obstruction member is smaller than the aperture in the bag wall;

Figure 4b shows a cross sectional view in which the obstruction
30 member has been deformed to become larger than the aperture in the bag wall;

Figure 5a shows a cross sectional view of an embodiment in which a heavier duty aglet is used, serving the function of an obstruction member;
35 and

Figure 5b shows a cross sectional view of an embodiment in which a heavier duty aglet has been deformed to become larger than the aperture in a bag wall.

Detailed Description of the Preferred Embodiments

5 As shown in Figure 1, a conventional bag 10 is defined by a plurality of walls 15 with an open upper end 20 and a closed lower end 25.

Adjacent its upper end are a pair of flexible cord handles 30, 40 on approximately opposite sides of the bag. The flexible cord handles 30, 40 pass through respective pairs of apertures 31, 32 and 41, 42 in the bag walls.

10 As per conventional practice, the free ends of the handles are tied in knots 35 (not shown) and 45 on the interior side of the bag such that the ends of handles 30, 40 cannot slide through the apertures in the bag wall and the handle disengage from the bag.

As previously discussed, however, this conventional process is labour
15 intensive, expensive and unreliable.

Figure 2 shows a bag according to the present invention which replaces the knots 35 and 45 with obstruction members 50 fixed to the free ends of the handles 30, 40. The bag 10 may comprise any suitable flexible material such as paper, light cardboard, plastic film or fabric. The free ends of each handle
20 30, 40 may be doubled back before being inserted into the cord receiving passageway of the obstruction members 50, so that the free ends of the handles 30, 40 are on the opposite side of the bag wall to the obstruction members 50.

Figure 3 shows an embodiment of the present invention, in which a
25 section 31 of the agletted cord handle 30 is in a position to be passed through an aperture 16 in the bag wall 15 and into a cord receiving cavity 51 of an obstruction member 50. The aglet 32, once positioned at least partially within the cavity 51, may then be bonded to the obstruction member 50 by applying sufficient heat to cause bonding. The step of heating the
30 obstruction member 50 may be performed using microwave heating techniques. In cases such as this the heating preferably occurs only within a small part of the obstruction member 50 close to the aglet 32. Such a technique may be desirable for the purposes of speed, efficiency of production, or to minimise heat damage to the cord 31 or aglet 32. Once the
35 aglet 32 and the obstruction member 50 are bonded together, the cord has then been securely attached to the bag. The aglet 32 must therefore be

sufficiently firmly attached to the cord 31 to hold the cord 31 in place when in use as a bag handle.

Note that the obstruction member 50 is large enough that it is unable to pass through the aperture 16. Note also that the aperture 16 formed in the bag wall 15 is only marginally larger than the agletted cord 31. This means
5 that the strength of the bag wall 15 is less affected by the aperture 16, and also allows a smaller (and hence cheaper) obstruction member 50 to be used.

Figure 4a shows an embodiment in which the obstruction member 50 has dimensions such that it may pass through the aperture 16 of the bag 15. In this embodiment, the obstruction member 50 has been bonded to the aglet 32 prior to passing the cord 31 through the aperture 16. As it is clear in Figure 4a that the obstruction member 50 will not secure the cord handle 31 to the bag, the obstruction member 50 is subsequently deformed so that it becomes large enough to prevent the cord 31 passing through the aperture 16,
10 as shown in Figure 4b. The deformation may be effected by applying sufficient heat to the obstruction member 50 that it becomes malleable, and then applying a force in order to distort the shape of the obstruction member 50. The obstruction member 50 then cools and sets in the new shape.

Figure 5a shows an embodiment in which the aglet 32 functions as the obstruction member 50. Once again, it is clear in Figure 5a that the aglet 32 will not secure the cord handle 31 to the bag, so the aglet 32 must be deformed so that it becomes large enough to act as an obstruction member and prevent the cord 31 passing through the aperture 16, the end result being shown in Figure 5b.
20

Clearly, the aglet 32 used in the embodiment shown in Figure 5a and Figure 5b must be of greater mass, in order that it may provide a sufficiently sturdy obstruction once it is deformed such that its dimensions no longer permit it to pass through the aperture 16.
25

Although the invention has been described with reference to particular examples of the invention, it should be appreciated that it may be exemplified in other forms. For instance, the obstruction member can be positioned on the interior or exterior side of the bag wall. If the obstruction member is decorative or includes additional advertising material, it may be desirable to have it positioned on an exterior side of the bag.
30

The cord receiving cavity of the obstruction member may pass entirely through the obstruction member, or alternatively the cavity may intrude only
35

partially into the obstruction member. In cases where the cavity only extends partially into the obstruction member, it is important that the aglet is positioned close enough to the end of the cord that when the cord is inserted into the cavity, the aglet becomes positioned at least partially within the
5 cavity.

While the present inventive method and apparatus has been described in relation to attaching flexible handles to bags, it will be understood by persons skilled in the art that the inventive obstruction member, method and apparatus are equally suitable for other types of receptacles for example
10 buckets, boxes, baskets etc with flexible cord handles.

The obstruction member may include advertising material for example the name of the retail outlet providing the bags to its shoppers or may be shaped in the form of a company logo or symbol. The step of deforming the obstruction member may be performed in such a way that the obstruction
15 member provides advertising material or decoration. The use of an appropriately shaped tool to perform the deformation may make this process simpler. Of course, in such a case it may be beneficial to position the obstruction member on the exterior side of the bag.

It will be appreciated by persons skilled in the art that numerous
20 variations and/or modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive.

Dated this twentyfourth day of April 1998

GIS PAC PTY LTD

Patent Attorneys for the Applicant:

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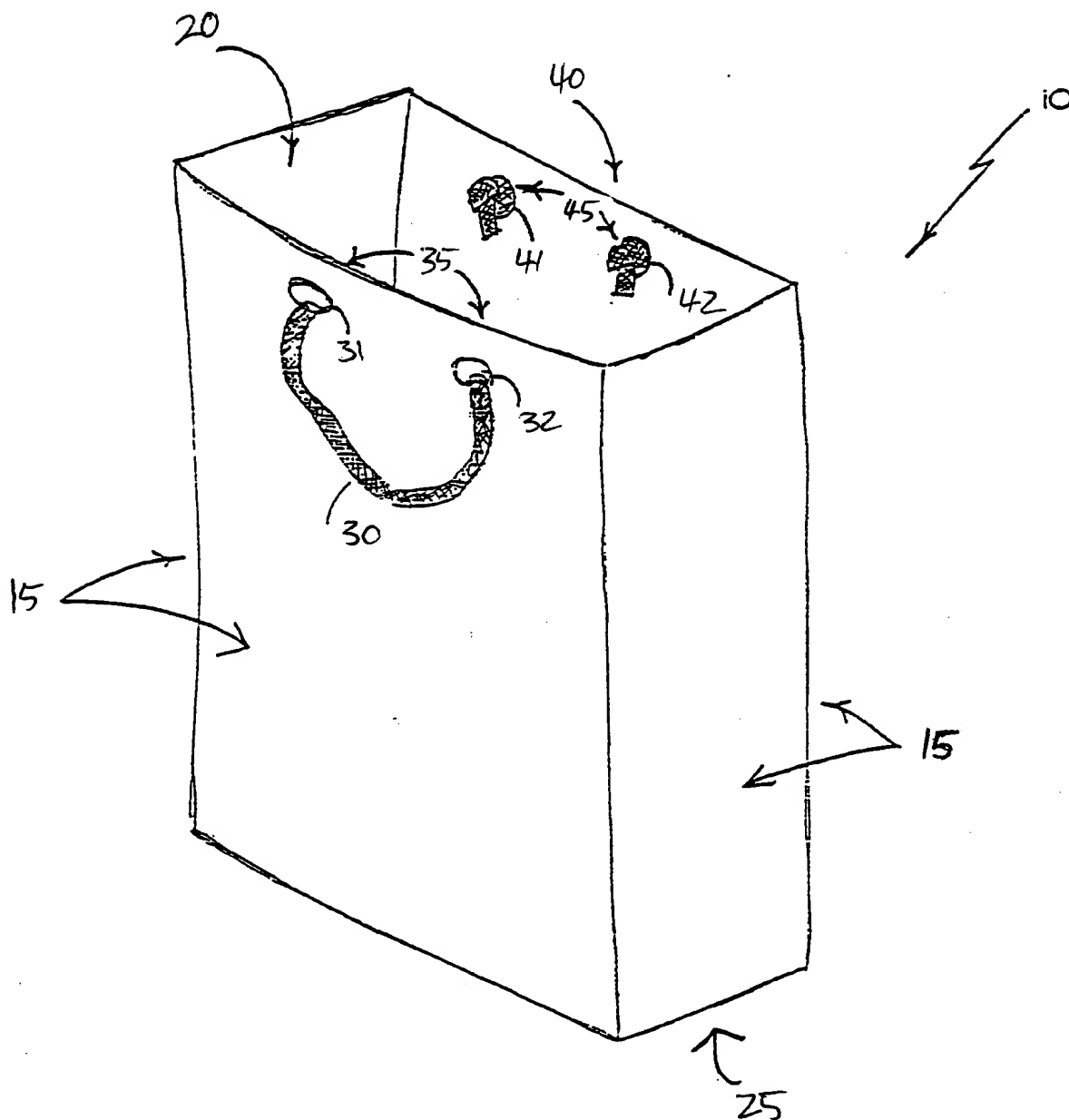


Figure 1

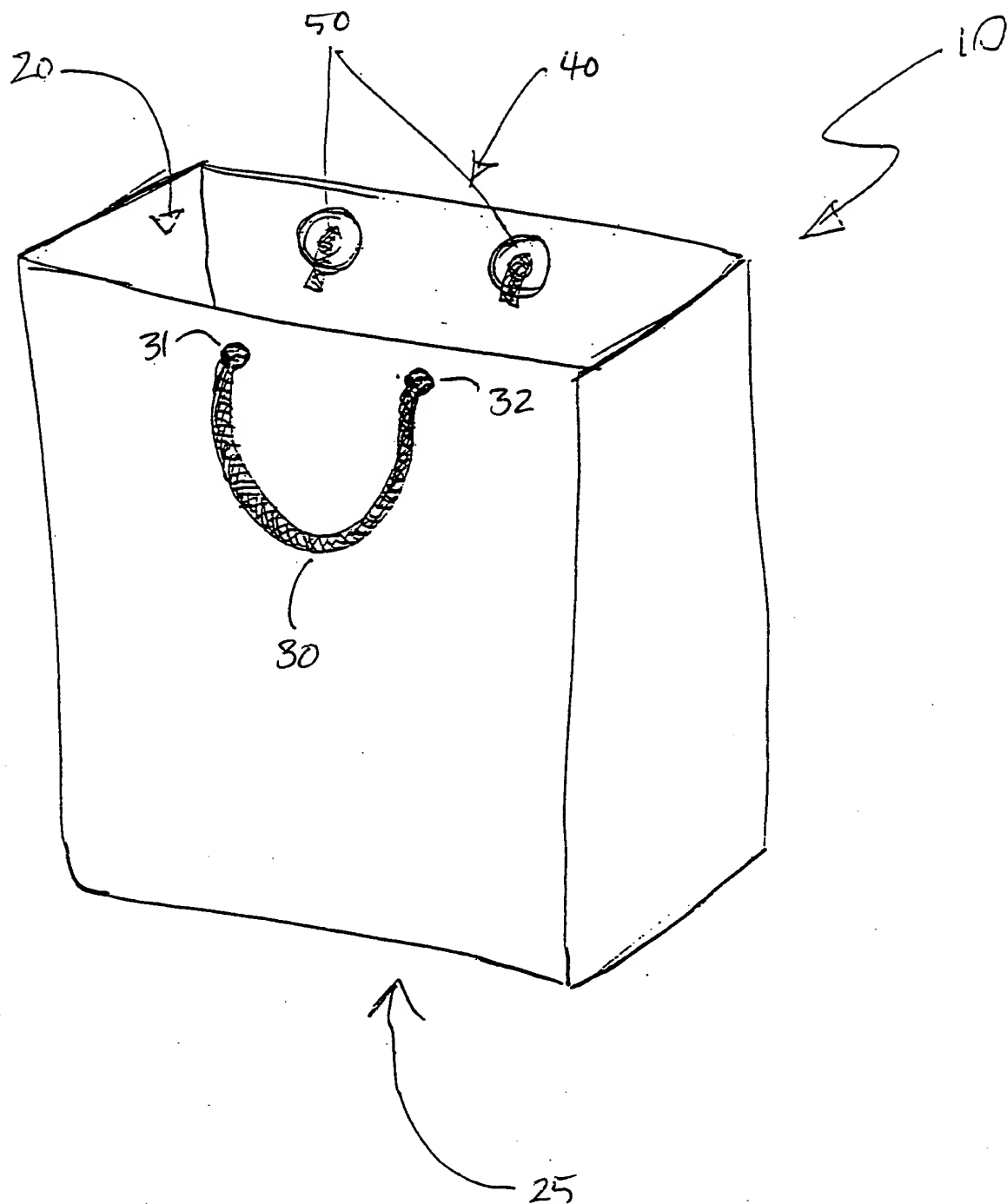


Figure 2

FIGURE 3

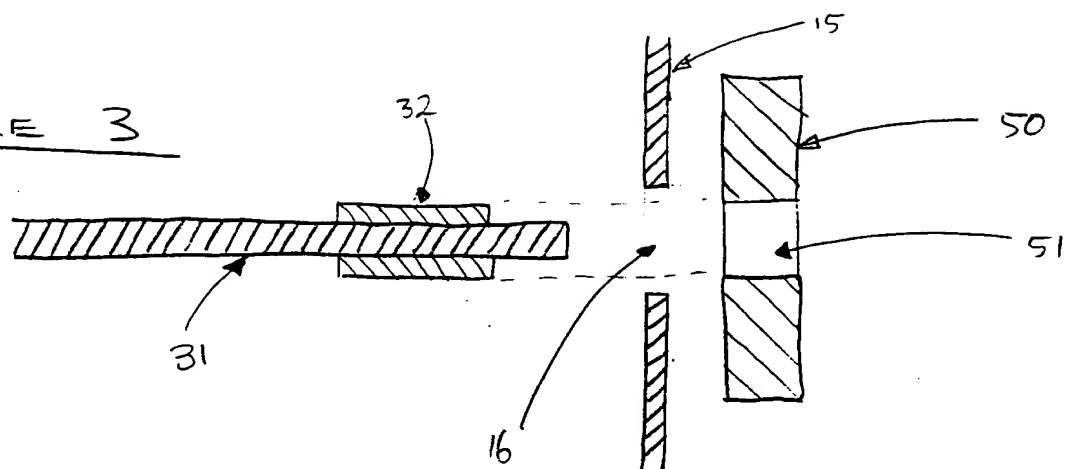


Figure 4a

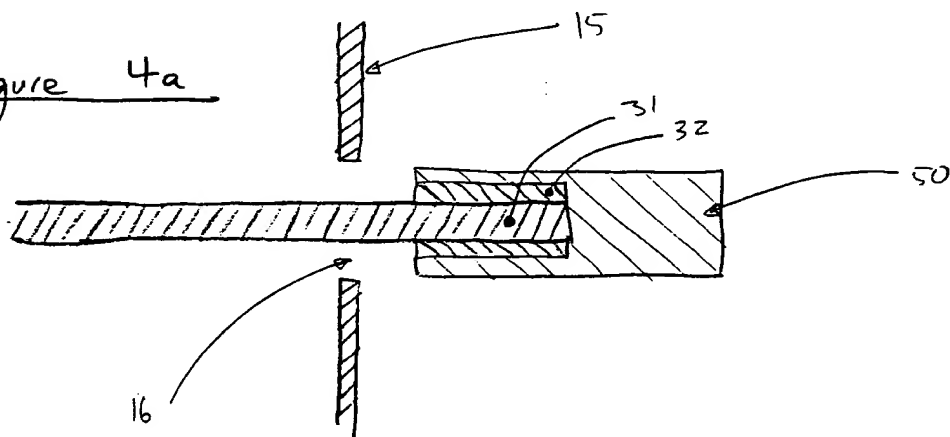


Figure 4b

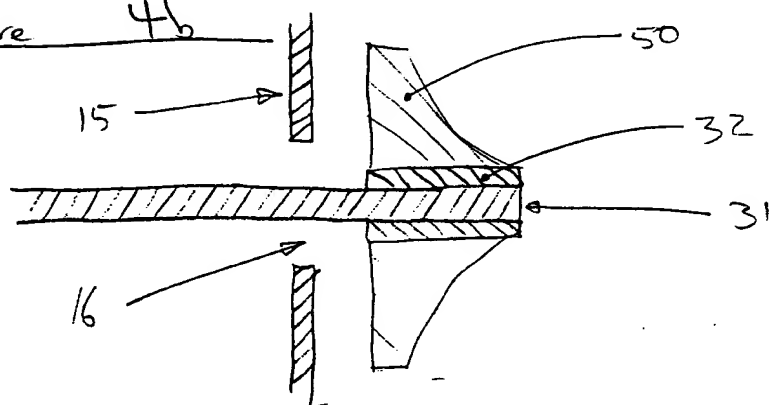


Figure 5a

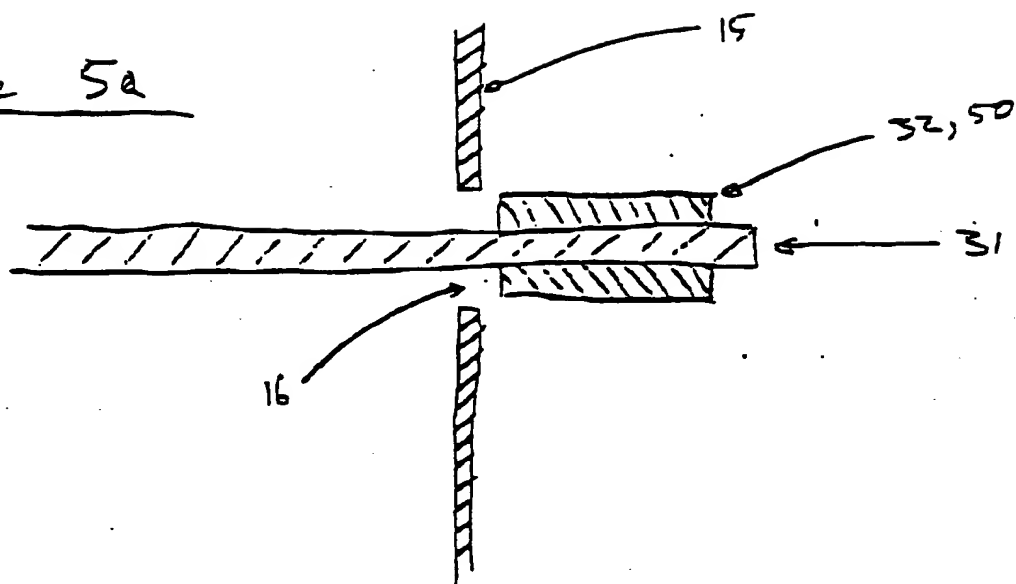
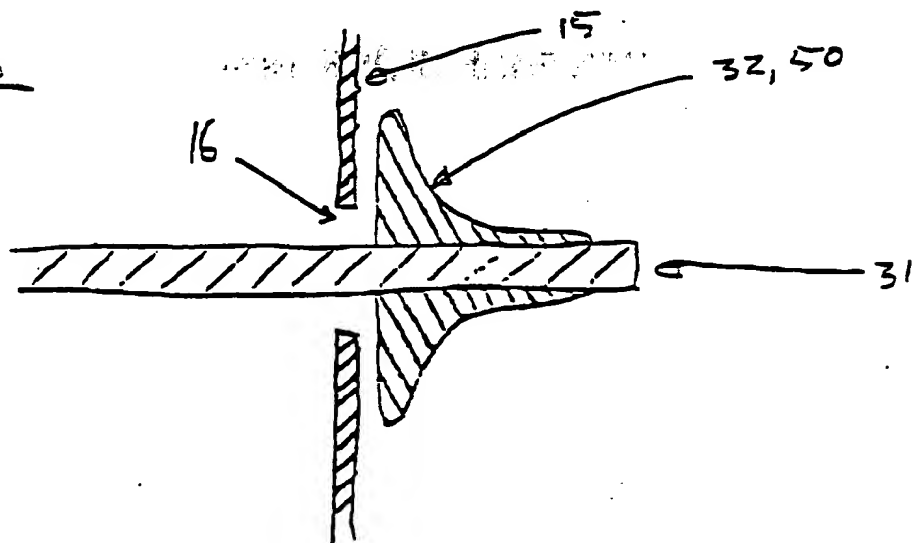


Figure 5b



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